

### **Claims**

What is claimed is:

1. An object model for representing a document as a data structure in memory comprising:
  - an item component for representing data elements;
  - a relation component for representing associations between items; and
  - an attribute component for representing information about items.
2. The object model of claim 1, the item component representing a text element.
3. The object model of claim 1, the item component corresponding to an XML element.
4. The object model of claim 1, the attribute component corresponding to XML attributes and property elements that do not refer to an XML element.
5. The object model of claim 3, the relation component corresponding to an XML element parent and child relationship.
6. The object model of claim 3, the relation component corresponding to XML attributes and property elements whose value refers to an XML element.
7. A system for structuring data comprising:
  - a parsing component adapted to parse an XML document into a semantic list; and
  - a transformation component adapted to transform the semantic list into a tangled structure semantic document object model.

8. The system of claim 7, the transformation component being a relational rule set operable to provide associations between XML elements for representing the XML document in the tangled structure semantic document object model.

9. The system of claim 9, the relational rule set being a plurality of relational rule patterns.

10. The system of claim 10, the plurality of relational rule patterns being constructor patterns.

11. The system of claim 7, the transformation component being a XML schema with relational pattern elements added to elements and attributes of the XML schema.

12. A method for structuring data comprising the step of:  
parsing an XML document into a semantic list; and  
transforming the semantic list into a tangled structure semantic document object model.

13. The method of claim 12, further comprising a step of transforming the semantic list into a hierarchical semantic document object model prior the step of transforming into a tangled structure object model.

14. The method of claim 12, the step of transforming the semantic list into a tangled structure document object model comprising a step of manipulating the elements, attributes and text of the semantic list employing a relational rule set.

15. The method of claim 14, the relational rule set being a plurality of relational rule patterns.

16. The method of claim 15, the plurality of relational rule patterns being constructors.

17. The method of claim 12, the step of transforming the semantic list into a tangled structure document object model comprising a step of manipulating the elements, attributes and text of the semantic list employing an XML schema that provides relational pattern elements to items and attributes of the XML schema.

18. A computer-readable medium having computer-executable instructions for performing the steps of:

parsing an XML document into a semantic tree; and  
transforming the semantic tree into a tangled structure semantic document object model.

19. A method for structuring data comprising the step of:  
determining a relationship to be applied between at least two data elements; and  
applying a rule to associate a text element identifying the relationship between the at least two data elements.

20. The method of claim 19, the at least two data elements being XML elements having a parent and child relationship.

21. The method of claim 19, the at least two data elements being an XML element and a XML attribute whose value refers to an XML element.

22. A computer-readable medium having computer-executable instructions for performing the steps of:

determining a relationship to be applied between at least two data elements; and

applying a rule to associate a text element identifying the relationship between the at least two data elements.

23. A method for structuring data comprising the step of:  
parsing an XML document into a semantic list;  
transforming the semantic list into a hierarchical semantic document object model;  
and  
transforming the semantic document object model into a tangled structure semantic document object model.

24. The method of claim 23, the step of transforming the semantic document object model into a tangled structure semantic document object model comprising a step of manipulating items, relations and attributes by employing a relational generation rule set.

25. A system for allowing patterning of a data structure residing in memory, the data structure conforming to a tangled structure semantic document object model comprising:  
a relation pattern component having a plurality of relational patterns operable to query data from the data structure and insert data into the data structure; and  
an interface component operable to provide programs and applications access to invocation of relational pattern within the pattern component.

26. The system of claim 25, the interface component being one or more application program interfaces.

27. A method of providing a schema for transforming an XML document into a tangled data structure, comprising the steps of :  
providing an XML schema; and  
adding relational pattern elements to items and attributes of the XML schema.